

CLAIMS

What is claimed is:

1. A radio frequency transmitter comprises:

5 digital baseband encoding module operably coupled to convert outbound data into outbound symbols in accordance with a baseband encoding protocol;

inverse discrete Fourier transform (IDFT) module operably coupled to convert the outbound symbols into a complex time domain sample sequence;

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complex digital filter operably coupled to filter the complex time domain sample sequence to produce a filtered complex time domain sample sequence;

complex digital to analog converter operably coupled to convert the filtered complex time domain sample sequence into in-phase analog signal components and quadrature analog signal components; and

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radio frequency modulation module operably coupled to convert the in-phase and quadrature analog signal components into outbound radio frequency signals, wherein the complex digital filter attenuates the complex time domain sample sequence such that signal strength of the outbound radio frequency signals in an exclusion radio frequency band is at or below a specified signal strength.

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2. The radio frequency transmitter of claim 1, wherein the complex digital filter comprises at least one of:

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a low pass filter; and

a bandpass filter.

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3. The radio frequency transmitter of claim 2, wherein the low pass filter comprises at least one of:

a multiple order elliptic low pass filter; and

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a multiple order Chebychev low pass filter.

4. The radio frequency transmitter of claim 2, wherein the low pass filter comprises:

10 a first 2nd order bi-quad stage;

a second 2nd order bi-quad stage;

15 a third 2nd order bi-quad stage operably coupled in a cascade manner to the first and second 2nd order bi-quad stages, wherein the cascaded first, second, and third 2nd order bi-quad stages filter the complex time domain sample sequence to produce a multiple order filtered sample sequence; and

20 a gain module operably coupled to amplify the multiple order filtered sample sequence to produce the filtered complex time domain sample sequence.

5. The radio frequency transmitter of claim 1, wherein the baseband encoding protocol comprises at least one of:

25 IEEE 802.11 g,

IEEE 802.11 a; and

IEEE 802.11b.

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6. The radio frequency transmitter of claim 1, wherein the IDFT module comprises:

an inverse fast Fourier transform (IFFT) module.

7. A radio frequency transmitter comprises:

digital baseband encoding module operably coupled to convert outbound data into outbound symbols in accordance with a baseband encoding protocol;

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digital filter operably coupled to filter the outbound symbols to produce a filtered outbound symbols;

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inverse discrete Fourier transform (IDFT) module operably coupled to convert the filtered outbound symbols into a complex time domain sample sequence;

complex digital to analog converter operably coupled to convert the complex time domain sample sequence into in-phase analog signal components and quadrature analog signal components; and

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radio frequency modulation module operably coupled to convert the in-phase and quadrature analog signal components into outbound radio frequency signals, wherein the complex digital filter attenuates the complex time domain sample sequence such that signal strength of the outbound radio frequency signals in an exclusion radio frequency band is at or below a specified signal strength.

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8. The radio frequency transmitter of claim 7, wherein the digital filter comprises at least one of:

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a low pass filter; and

a bandpass filter.

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9. The radio frequency transmitter of claim 8, wherein the low pass filter comprises at least one of:

a multiple order elliptic low pass filter; and

a multiple order Chebychev low pass filter.

5 10. The radio frequency transmitter of claim 8, wherein the low pass filter comprises:

a first 2nd order bi-quad stage;

a second 2nd order bi-quad stage;

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a third 2nd order bi-quad stage operably coupled in a cascade manner to the first and second 2nd order bi-quad stages, wherein the cascaded first, second, and third 2nd order bi-quad stages filter the complex time domain sample sequence to produce a multiple order filtered sample sequence; and

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a gain module operably coupled to amplify the multiple order filtered sample sequence to produce the filtered complex time domain sample sequence.

20 11. The radio frequency transmitter of claim 7, wherein the baseband encoding protocol comprises at least one of:

IEEE 802.11 g,

IEEE 802.11 a; and

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IEEE 802.11b.

12. The radio frequency transmitter of claim 7, wherein the IDFT module comprises:

30 an inverse fast Fourier transform (IFFT) module.